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BULLETIN NO. 279

Commercial Feeding Stuffs in Kentucky in 1926

By J. D. TURNER, H. D. SPEARS, W. G. TERRELL and W. A. ANDERSON, JR.

The attitude of the manufacturer of commercial feeds in the present day is entirely different from what it used to be. Only a few years ago, there was real indifference on the part of the manufacturer in the matter of complaints either by officials for irregularities in making and selling feeding stuffs, or by feeders on account of inferior quality. But the manufacturer has paid for these sins in state regulations, ill-will, hostility. Today a better understanding exists. He is better organized. He is organized for service. He is anxious to please his customer. He has learned that a dissatisfied customer, formerly a nuisance, may be turned into an asset. He knows when he pleases his customer, the customer will tell it to others. The manufacturer is organized not only to give better service, but to create good will, as evidenced by extensive methods of education and by the use of the open formula.

The increased interest taken by the feeder is another indication of changed conditions and is very gratifying. He is studying his feed problems as never before, both from a practical and a scientific standpoint, by reading, by experimenting and by consulting the Kentucky Experiment Station and other sources of information. He is turning to his own resources thru better knowledge of feeds and their use, and thru discriminate

buying. He is learning that it is more economical to raise as much of his feed material as possible and supplement his home grown materials by high-protein commercial products. This does not mean he is using less feeding stuffs, but using them to a better advantage. Kentucky feeders used about twenty-eight thousand tons more of commercial feeds in 1926 than they did in 1925.

This bulletin covers in a brief way the results of the inspection and analysis of these feeds for 1926. In addition, it also contains other material that should be of distinct interest and value to the feeder and the manufacturer.

Over 260 thousand tons of commercial feeds were consumed in the State in the period covered by this bulletin. This does not include whole grains and hays. Of this amount, it is estimated that at least 70% was imported into the State, leaving only 30% to be produced within the State. On the whole, commercial feeds are of much better quality than formerly, but there is quite a tonnage of very poor feeds consumed in the State by the uninformed and unsuspecting feeder who will buy on price rather than quality. A large portion of these low-grade feeds are manufactured by what may be termed "transient" manufacturers and sold by jobbers. Of course, many of the better class of manufacturers are forced to make them, to compete with this cheap class of feed.

In the application of the results set forth herein, the Department offers the following suggestions with a view of assisting dealers and feeders in the selection of their feeds, either for the purpose of supplementing home grown materials or as a balanced ration.

1. Dealers should buy only from manufacturers who have a good record and are complying with the feed law.

2. Feeders should buy only from reputable dealers who have a good record and are complying with the feed law of Kentucky by having every bag of feed properly labeled.

3. The feeder should ascertain what his animals need and what will supply these needs, as no animal will give good results without proper food.

4. If in doubt as to what the animal needs, he should consult the Kentucky Agricultural Experiment Station of the College of Agriculture, or some other good authority.

5. He should buy no commercial feed that is not registered and tagged with a Kentucky official tag, giving the manufacturer's guaranty to the State and buyer. He should note carefully the system of tagging.

6. He should read and study carefully the list of ingredients to see if the feed contains a material of little or no feeding value, such as oat hulls, oat clips, cob meal, screenings refuse, weed seeds and cheap and highly fibrous materials.

7. He should keep in mind that high-grade feeds are the most economical.

8. Many of the commercial feeds sold in Kentucky are very low grade and are unbalanced and do not furnish animals with proper nourishment. The use of such feeds often results in a hardship to the animal and a loss to the owner.

9. The value of a feed depends upon that portion of the nutrient which an animal, under ordinary circumstances and conditions, can digest and take into its system for building up the growth, keeping up the heat and energy and repairing the natural waste of the body. Quality feeds will best serve this purpose.

10. The amounts of crude protein, fat and fiber in a feed will serve only partly as a guide in selecting feeding stuffs. The buyer should base his final conclusion on the amount and quality of digestible nutrients. (See standard text books on feeds and feeding, or consult the Experiment Station.)

11. Cane molasses makes an excellent addition to a feed, giving both added food value and palatability, but it is too frequently used for the purpose of covering up adulterants (cheap, trashy and highly fibrous materials) in mixed feeds.

12. The yellow-tag feeds contain a material of little or no feeding value. As a general rule, it is not economical to buy such feeds.

The scope of scientific feeding for all classes of stock is widening. This is indicated by the great variety of feeds found

on the market and information sought by dairymen, stockmen generally, farm bureaus, co-operative organizations, county agents and similar agencies. The information sought covers mineral feeds, dog feeds, feeds suspected of being poisonous and feed rations for all classes of animals. In this respect the Department has been in greater demand than in any previous year.

For the year, 1026 samples were analyzed. Of this number, 271 were sent in by consumers and dealers for examination for purity and quality. This is an indication of the growing interest of the feeder. One hundred and twenty-seven samples of a miscellaneous nature were analyzed for other departments of the Experiment Station and the University, feed chemists of other states and Association of Official Agricultural Chemists work.

In the following tabulation the feeds sold in Kentucky during the year are grouped according to class, with the tonnage computed from tax tags issued.

	Tons	Tons
Horse and Mule Feed		21,900
Dairy Feed:		
16½% Protein	17,325	
20% Protein	7,475	
24% Protein	13,965	
		39,765
Poultry Grains:		
Scratch	23,700	
Chick	5,375	
		29,075
Pigeon Feed		575
Poultry Mash:		
Laying	7,425	
Growing	2,100	
Starting	2,475	
Fattening	4,175	
		16,175
Calf Meal		375
Hog Feed		2,775
Sheep Feed		75
Dog Food		50
General Stock Feed		2,700

	Tons	Tons
Cottonseed Meal:		
41% Protein	13,875	
43% Protein	3,375	
36% Protein	400	
		17,650
Wheat Bran		7,150
Wheat Middlings, Shorts		18,075
Mixed Wheat Feed		23,925
Red Dog		350
Flour Middlings		725
Miscellaneous Wheat Feeds		4,785
Cracked Corn, Corn Chop		16,275
Corn Feed Meal		2,625
Hominy Feed, Hominy Meal		5,425
Corn By-Product Feed		25
Corn Bran		225
Crushed Ear Corn		75
Mixed Feed (Wheat and Corn By-Products)		36,500
Tankage		2,875
Meat Meal		725
Blood Meal		25
Bone Meal		300
Linseed Oil Meal		1,325
Alfalfa Meal		150
Beet Pulp		350
Brewers' Grains		125
Dried Buttermilk, Semi-solid		685
Ground Oats		1,000
Miscellaneous		1,500

MINERAL FEEDS

Mineral matter in commercial feeding stuffs is often spoken of as ash. It has been shown that animals fed rations freed from mineral matter, so far as it is possible, will soon die of mineral starvation. It is found that animals deprived of mineral matter will die sooner than when no food is given. Mineral matter, therefore, is of vital importance to animals. It is necessary in every ration, and the common feeding stuffs contain all the necessary mineral substances, tho they may be in very small amounts. The proportions of these substances in the common feed materials

vary materially according to the kind of plant, the portion of the plant used, and other conditions. In some regions and under certain circumstances a deficiency of mineral matter in feeds may occur, but this is not generally the case, and there is need for discrimination in determining whether animals require mineral feed supplementary to the ration, other than common salt.

A very general interest in the subject of supplementary mineral feeds has been aroused, largely on the basis of suggestions rather than evidence, and a flourishing business in these products is the result. The sale of these products does not stop with the serving of actual requirements where deficiencies exist but, thru propaganda and other means, the manufacturers of these mixtures have exacted an enormous sum from the uninformed feeders of Kentucky and other states as well. The use of expensive proprietary mineral mixtures is not necessary and generally proves uneconomical.

The Association of Feed Control Officials at its annual meeting in 1926 approved the following uniform classification and labeling of mineral mixture feeds:

(a) That mixed feed containing both feed and more than 5 per cent of mineral ingredients requires, in addition to the usual declaration of the chemical feed analysis, a declaration of each ingredient contained therein and the minimum percentages of lime (CaO), phosphoric acid (P_2O_5), iodine (I) and the maximum percentage of salt (NaCl) if same are added. If minerals predominate in the mixture the usual declaration of the chemical feed analysis, with the exception of protein, may be omitted.

(b) That mineral feeds containing no organic ingredient do not require the usual chemical feed guarantee, but do require a declaration of each ingredient contained therein and the minimum percentage of lime (CaO), phosphoric acid (P_2O_5), iodine (I), and the maximum percentage of salt (NaCl) if the same are present.

(c) That the mineral ingredients be stated in the common English terms, if any such terms exist.

(d) It being impossible to classify separately the drug ingredients and the mineral ingredients, be it resolved:

(1) That all mixtures containing mineral ingredients generally regarded as dietary factors essential for the normal nutrition of animals and which are sold or represented for the primary purpose of supplying these minerals as correctives to rations in which these same mineral factors may be deficient, be classified as mineral feeds.

(2) That all other preparations which are sold or represented primarily for the cure, mitigation or prevention of disease be classified by this association as drugs or medicines.

THE COMPOSITION OF FEEDING STUFFS AND EXPLANATION OF TERMS USED

The law of the State requires a statement of the percentages of protein, fat and fiber in any feed, the idea being that this information, along with the other data covering the ingredients, would protect the purchaser and enable him to intelligently buy his feed. But a careful preparation of a ration requires a more complete knowledge of the composition of feeding stuffs. Besides protein, fat and fiber, the ordinary "complete" analysis consists in making the following additional determinations: water, ash and nitrogen-free extract.

Sometimes special determinations must be made. For example, in molasses feeds, it is often necessary to know the sugar and moisture contents. In feeding materials such as silage, it is desirable to know the acidity, since this determination is an index as to the palatability of the material. In animal materials, the amount of phosphate is determined in order to ascertain whether the material should be classified as a meat material or a meat and bone mixture. In feeds containing screenings, sweepings, dust and refuse from mills and elevators, it is very desirable to determine the amount of sand.

Protein is the name given to organic nitrogenous materials essential to plant and animal life. It contains about 16 per cent. of the element nitrogen and its amount is obtained simply by

multiplying the amount of total nitrogen found by analysis, by the factor, 6.25. Protein is the most important as well as the most costly constituent in a feed and the value of the feed depends very largely on the amount of this constituent it contains. It produces flesh, muscle, ligaments, glandular secretions, milk, blood, tendons, hair, hoof, hide, and is found in all parts of the animal body, including the bones which contain 25 or 30 per cent.

Fat is that part of a feeding stuff soluble in ether. It covers fats, oils, wax, resins and chlorophyl, the last three of no importance and present only in minute quantities. Fats produce heat and energy, their value for such being 2¼ times greater than that of either carbohydrates or protein. Therefore, they serve to prevent undue waste of protein in the body. The fatty tissues by forming a cushion, also serve as a protection to the other tissues of the body.

Fiber, the insoluble carbohydrate, is the woody portion or structural material of plants and grains and outer grain coatings. When present in large quantities it exerts a retarding influence on the digestion of nutrients present in feeding stuffs, as it is itself only partially digested by animals. Its chief value appears to lie in its mechanical effect in the intestinal tract.

Ash contains the inorganic or mineral constituents which are present in all feeds. These mineral constituents form the bony structures and are found in all the vital tissues and secretions of the animal body. Their importance may be realized when we recall experiments which show that animals deprived of mineral matter generally die sooner than when no feed is given them at all. Some of the more important mineral constituents found in plants are compounds of sulfur, chlorin, phosphorus, potassium, sodium, calcium, magnesium, manganese and iron. Grains, seeds and tubers are deficient in calcium, sodium and chlorin. Legumes and the hay made from them, corn stover and the leafy parts of plants generally contain sufficient quantities of these substances. The common practise of giving salt to livestock supplies the need for sodium and chlorin.

Water is composed of hydrogen and oxygen. The amount of water in a commercial feeding stuff depends upon the character of the materials from which the feed is made, their age or state of greenness, the process of manufacture and atmospheric conditions. Some by-product feeds have had their original water content altered. The amount of water in sweet feeds is affected by the amount of molasses they contain and the water content of the same.

The presence of water in commercial feeding stuffs adds nothing to their value as food because the animals receive their supply of water from other sources. Any amount of water other than that necessary to keep the feeding stuff in proper condition, reduces the value of the feed by reducing the percentages of the desirable substances. An excessive amount of water lowers the keeping qualities of the feed.

Nitrogen-free Extract is that part of carbohydrates which remains after deducting the crude fiber. It contains the easily digestible carbohydrates; therefore, knowledge of the amount present is important. The chemist estimates the percentage of nitrogen-free extract by subtracting from 100 the sum of the percentages of water, ash, protein and fiber found by analysis.

Nitrogen-free Extract is of importance as a source of heat, nervous and muscular energy. While it does not have as great a power in this respect as fat, it is present in such large quantities in feeds that it serves an important part. The members of this group of constituents differ in nutritive value on account of the wide variance in their digestibility. The starches and sugars are readily soluble and almost completely digested, while pentosans and other less well known substances are digested with much more difficulty and less completely. Nitrogen-free extract is converted into fats in the animal body and any excess over the immediate needs of the body is stored as fat in the tissues.

Carbohydrates, as noted above, is the sum of the Crude Fiber and Nitrogen-free Extract.

MICROSCOPICAL ANALYSIS

Every sample of feed that comes into the laboratory is subjected to a microscopical examination. The purpose of this examination may be summed up as follows:

(a) To see what products are present in the feed.
(b) To help interpret the results of the chemical analysis.

(From results accomplished it is apparent that the importance of microscopical examination of feeding stuffs is increasing each year.)

Feeds sold on the market are made from grains, grain products, various by-products, and roughages. These products may be sold unmixed or in mixtures of from two to a dozen or more materials. Molasses and small amounts of salt and other minerals are frequently added to these mixtures. By a microscopical examination it is determined what materials are present in a feed, and knowledge obtained of the proportions in which they are mixed. The microscopist also notes the physical condition of the feed, its odor, the kind and quality of the materials used, and if any objectionable materials are present.

The products from which feeds are made vary not only in chemical analysis, but in palatability, digestibility, purity, etc. Hence, it is not only highly desirable to know how much protein, fat and fiber are present in a feed, but the source of these nutrients as well. For example, in a feed that analysis shows to be high in fiber, it is desirable to know whether this fiber is due to the presence of alfalfa meal or to oat hulls. Again, if a feed is shown by analysis to be low in protein, the question arises as to whether this low protein is due to an inferior low-protein adulterant or to wheat flour, a product low in protein, but highly digestible, and therefore relatively desirable. The microscopical examination shows which of these products is present.

The chemical and microscopical examinations go hand in hand in the detection of adulterants. If a feed diverges widely

from the guaranty as to chemical constituents, it is a strong indication that some ingredient has been left out, something added, or the proportions of the ingredients materially changed. The microscopical examination shows the nature of these changes.

DEFINITIONS OF FEEDING STUFFS

The Association of Feed Control Officials has formulated definitions in most part for feed terms in general use. These definitions are followed as closely as possible where conditions in Kentucky will permit. These definitions are published in Bulletin 268—Commercial Feeding Stuffs in Kentucky in 1925, by the Kentucky Agricultural Experiment Station. Copies may be secured on application.

STANDARDS AND REQUIREMENTS

Definitions of by-product feeds and feed terms have served a useful purpose in standardizing these products, but definitions alone are not always sufficient to assure quality.

In formulating definitions, the Association of Feed Control Officials found it necessary in many instances to use chemical standards as part of the definitions in order to give a more distinctive qualification of the products. Many of the State officials have gone further than these definitions and have adopted minimum chemical standards for the more common feed materials and a few officials have gone further and established minimum chemical standards for some of the more important special purpose stock feeds. In the case of either standard by-products or special purpose mixed stock feeds, chemical standards are made in order to insure better quality by eliminating as far as possible an admixture of inferior, waste and highly fibrous materials.

The standards now in effect in Kentucky are:

CHEMICAL STANDARDS

		Minimum Protein	Minimum Fat	Maximum Fiber
1.	**Standard By-Products:**			
	Mixed Wheat Feed	15.50%	4.00%	8.50%
	Wheat Bran	14.50%	3.75%	10.00%
	Brown Wheat Middlings or Shorts	16.00%	4.00%	7.50%
	Gray Wheat Middlings or Shorts	16.00%	4.00%	6.50%
	White Wheat Middlings or Shorts. Flour Middlings	16.00%	3.75%	4.00%
	Corn Feed Meal	8.00%	3.75%	5.00%
	Cracked Corn	8.00%	3.50%	3.00%
	Hominy Meal, Hominy Feed or Hominy Chop	10.00%	7.00%	6.00%
	Alfalfa Meal	.....	.....	32.00%
	Rye Middlings	.....	.....	6.00%
	Ground Barley	.....	.....	6.50%
	Ground Oats	.....	.....	12.00%
2.	**Special Purpose Mixed Feeds:**			
	Dairy Feed	15.00%	3.00%	16.00%
	Horse and Mule Feed	9.00%	2.00%	15.00%
	Hog Feed	14.00%	3.50%	7.00%
	Laying Mash	18.00%	3.50%	8.00%
	Scratch Feed	.....	.....	5.00%

REGISTRATION REQUIREMENTS

3. **General Requirements:**

(a) In making registrations, care should be exercised that the chemical guaranties will be reasonably close to the actual content of the feed. In other words, arbitrary guaranties will not be accepted.

(b) If a material change is made in the guaranty of a feed, in effect lowering the value of the feed, the name of the feed must be changed also.

(c) For oil mill by-products and digester tankages, the percentage of protein must form part of the name. For example, 41% Cotton Seed Meal, 34% Old Process Linseed Oil Meal, 60% Digester Tankage, etc.

(d) Oil mill by-products containing hulls, screenings and similar materials, thus materially lowering the percentage of crude protein, cannot be called meals, but may be called meal and hulls, or meal and screenings, or feed, or by some proprietary name.

(e) Any feed containing less than 9% protein must be called by the names of its ingredients.

4. **Essential Organic Ingredients:**
A feeding stuff must not contain less than 3% of any essential organic food ingredient listed in the guaranty. If an ingredient so listed is found to be less than 3%, the feed will be classed as misbranded.

5. **Mineral Ingredients:**
Mineral ingredients, generally regarded as dietary factors essential for the normal nutrition of animals, when added to a ration, must not exceed 3%.

6. **Grit and Shell:**
The maximum amount of grit and shell, or of either, if only one is present, must not exceed 3%.

7. **Salt:**
The amount of salt in all stock and poultry feeds should not exceed 1%.

8. **Screenings:**
(a) Percentage of screenings in wheat feeds and statement whether ground or unground, must be given.
(b) In stock feeds the percentage of screenings and a statement whether ground or unground, is required and the percentage of weed seeds they contain must be given also. If the screenings have been "reworked" or "reconditioned," they must be called **screenings refuse.**

9. **Materials of Little or No Feeding Value:**
Percentage of material of little or no feeding value must be stated.

OFFICIAL TAG

Feeders should examine carefully the official tag before they buy their feeds. If the feed is not tagged with a Kentucky tag the buyer should not accept it. Buy only on the guaranty the tag carries, as this is the official guaranty to the State and purchaser. Claims of salesmen and statements made in advertising matter that are not in accordance with the guaranty on the official tag should be disregarded.

SYSTEM OF TAGGING

A purchaser should not only scrutinize closely the guaranty printed on the tag but he should observe the color system in tagging also, which is intended to give him additional warning and an opportunity to further investigate the make up of the feed before he accepts it. The color system is:

First, a manila tag printed in black ink represents a feeding stuff made of the products or by-products of one grain or plant only, such as wheat, or corn, or cotton seed, etc. For example, wheat shorts, mixed wheat feed, wheat bran, cottonseed meal or corn feed meal would bear manila tags printed with black ink. Such feeds are commonly known as "straight" feeds.

Second, a manila tag printed in red ink indicates that the feeding stuff is made of the products or by-products of two or more grains or plants, such as corn and wheat, or corn, wheat and cottonseed meal, etc. For example, a combination of corn feed meal, wheat bran, alfalfa meal, molasses and cottonseed meal would take a manila tag printed with red ink.

Third, a yellow tag printed in black ink indicates that a feeding stuff contains a material of little or no feeding value, or a material not classified as a concentrate, such as oat hulls, corn cob meal, peanut hulls, cottonseed hulls, flax-plant refuse, clipped oat by-product, peat, grain screenings, etc.

TABLE I.—Average Composition of the More Common Feeding Stuffs.

	Pounds in 100					
					Carbohydrates	
	Water	Ash	Protein	Fat	Fiber	N.F. Extract
Alfalfa meal	8.8	9.0	14.3	2.0	30.1	35.8
Barley	9.3	2.7	11.5	2.1	4.6	69.8
Beet pulp, dried	8.2	3.5	8.9	0.9	18.9	59.6
Blood, dried	9.7	3.3	82.3	0.9	.....	3.8
Bone meal, raw	7.3	61.7	24.3	3.1	.....	3.6
Brewers' dried grains	8.2	3.8	23.1	6.4	15.0	43.5
Buckwheat	12.1	2.1	10.8	2.5	10.3	62.2
Buttermilk, dried	4.5	8.1	34.6	12.6	.....	50.9
Buttermilk, semi-solid	65.0	2.7	13.4	3.0	.....	15.9
Corn	10.8	1.5	9.5	4.1	2.0	71.7
Corn and cob meal	10.4	1.5	8.5	4.1	7.9	67.6
Crushed ear corn with husks	11.0	1.8	7.5	3.0	7.8	68.9
Corn chop	10.5	1.5	8.3	3.5	1.4	75.5
Corn feed meal	10.5	1.5	9.4	4.5	2.7	71.1
Corn gluten feed	8.7	2.1	25.4	3.8	7.1	52.9
Corn gluten meal	9.1	1.1	35.5	4.7	2.1	47.5
Cottonseed meal 43%	7.5	6.2	43.0	7.2	9.7	26.4
Cottonseed meal 41%	7.5	6.2	41.0	7.3	10.7	27.1
Cottonseed meal 38½%	7.5	6.4	38.5	7.7	13.4	26.3
Cottonseed feed 36%	7.5	6.6	36.0	7.4	15.3	26.6
Cottonseed feed 22%	8.3	4.9	22.0	6.3	21.4	34.6
Cowpeas (seed)	11.6	3.4	23.6	1.5	4.1	55.8
Distillers' dried grains (chiefly corn)	6.6	2.6	30.7	12.2	11.6	36.3
Flaxseed	9.2	4.3	22.6	33.7	7.1	23.2
Hominy meal, feed or chop	10.1	2.6	11.3	9.3	5.5	61.2
Kafir corn	11.8	1.7	11.1	3.0	2.3	70.1
Linseed oil meal (new process)	9.6	5.6	36.9	2.9	8.7	36.3
Linseed oil meal (old process) 34%	9.1	5.4	34.0	7.5	8.4	35.7
Malt sprouts	7.6	6.1	26.4	1.5	12.6	45.6
Meat scraps 50%	8.0	6.5	50.0	10.5	7.5	2.6
Meat and bone meal	7.0	35.4	45.0	4.1	8.5	.....
Millet seed	9.1	3.3	11.8	3.3	7.8	64.7
Molasses, beet	22.0	7.0	9.0	.....	.....	62.0
Molasses, cane	25.7	6.1	3.2	.....	.....	65.0
Oats	10.4	3.4	11.5	4.6	11.0	60.9
Oat kernels	6.9	2.2	14.3	8.1	1.4	67.1
Peanut oil meal	6.6	4.8	44.8	10.2	7.6	26.0
Rice bran	10.0	9.5	12.0	10.0	12.0	47.5
Rye	9.4	2.0	11.8	1.8	1.8	73.2
Soybeans (seed)	9.9	5.3	36.5	17.5	4.3	26.5

TABLE I.—Continued.

	Pounds in 100					
					Carbohydrates	
	Water	Ash	Protein	Fat	Fiber	N. F. Extract
Soybean meal 43%	10.5	4.9	43.0	6.6	5.3	29.5
Sunflower seed	6.9	3.1	16.1	24.7	27.9	21.3
Tankage 60%	7.9	15.3	60.0	7.0	1.4	6.8
Tankage 50%	8.3	21.8	50.0	11.7	1.5	6.8
Wheat	10.2	1.9	12.4	2.1	2.2	71.2
Wheat bran	10.1	6.3	15.4	4.7	9.1	54.4
Mixed wheat feed	10.1	5.2	16.2	4.4	8.3	56.9
Wheat middlings, brown	10.3	5.4	16.9	4.5	7.3	56.1
Wheat middlings, gray	10.5	4.4	16.7	4.6	5.8	58.4
Wheat flour middlings	10.7	3.7	17.8	5.0	4.0	58.1
Wheat flour, red dog	11.0	1.5	14.1	3.2	2.0	68.2
Wheat flour, patent	12.3	0.5	10.9	1.3	0.4	74.6
Roughages						
Alfalfa hay	8.6	8.6	14.9	2.3	28.3	37.3
Clover, red	12.9	7.1	12.8	3.1	25.5	38.7
Soybean hay	8.6	8.6	16.0	2.8	24.9	39.1
Timothy hay	11.6	4.9	6.2	2.5	29.8	45.0
Corn stover (ears removed)	9.4	5.8	5.9	1.6	30.7	46.6
Fillers						
Buckwheat hulls	10.3	2.1	4.4	1.0	43.7	38.5
Corn bran	10.0	2.4	9.7	5.7	9.8	62.4
Corn cob	10.0	1.5	2.0	0.4	31.8	54.3
Cottonseed hulls	9.7	2.7	4.6	1.9	43.8	37.3
Flax screenings	8.8	8.2	15.4	11.8	15.5	40.5
Oat hulls and oat shorts	7.5	5.0	6.0	2.1	26.5	52.9
Oat hulls	6.8	6.0	4.0	1.7	29.2	52.3
Peanut hulls	9.1	5.5	7.3	2.6	56.6	18.9
Rice hulls	9.3	16.9	3.3	1.1	35.4	34.0
Velvet bean hulls	13.2	6.1	11.6	1.9	24.5	42.7
Wheat chaff	14.4	7.2	4.2	1.4	28.0	44.8
Wheat screenings	10.2	3.9	13.3	4.1	7.4	61.1

TABLE II.—Average Digestibility of the Nutrients in Common Feeding Stuffs, Taken from "Feeds and Feeding," by Henry and Morrison. (This table is copyrighted and is quoted by permission of the publishers.)

Feeding Stuff	Crude Protein %	Fat %	Carbohydrates	
			Fiber %	Nitrogen-free Extract %
Alfalfa	71	38	43	72
Barley	78	78	56	92
Beet pulp, dried	52	.....	83	83
Blood, dried	84	.....	.....	.....
Bone meal, raw	92	97	.....	.....
Brewers' grain, dried	81	89	49	57
Buckwheat	75	100	24	76
Buttermilk, dried	85	49	.....	81
Clover, red	59	57	54	66
Corn, whole ground	74	93	57	94
Corn and cob meal	52	84	45	88
Corn gluten feed	85	85	76	88
Corn gluten meal	85	93	55	90
Corn stover	37	62	66	59
Cottonseed feed	58	90	45	61
Cottonseed meal, choice and prime	84	95	37	75
Distillers' dried grains	73	95	95	81
Flaxseed	91	86	60	55
Hominy feed or meal	66	91	76	90
Kafir corn	81	77	55	92
Linseed meal (new process)	86	95	73	87
Linseed meal (old process)	89	89	57	78
Malt sprouts	77	85	87	80
Meat scraps	93	98	.....	.....
Meat and bone meal	85	.....	.....	.....
Millet seed	59	80	41	84
Molasses, cane	32	.....	.....	90
Oats	78	87	35	81
Peanut cake from hulled nuts	90	90	9	84
Rice bran	65	77	25	79
Rye, ground	84	64	.....	92
Soybeans, ground	91	92	75	81
Soybean oil meal	92	68	99	100
Sunflower seed	84	82	.....	.....
Tankage (with swine)	71	100	.....	100
Wheat, ground	74	72	59	93
Wheat bran	78	68	31	72
Wheat mixed feed	77	87	36	76
Wheat middlings or shorts	88	86	36	88
Wheat red dog flour	80	70	60	83
Wheat flour, patent	74	69	.....	.....

TABLE II.—Continued.

Feeding Stuff	Crude Protein %	Fat %	Carbohydrates	
			Fiber %	Nitrogen-free Extract %
Fillers				
Buckwheat hulls	9	10	.....	62
Corn bran	60	80	71	80
Corn cob	19	50	60	52
Cottonseed hulls	6	79	47	34
Oat hulls and oat middlings	75	78	42	46
Peanut hulls	6	80	.....	.....
Rice hulls	10	67	1	35
Wheat chaff	26	43	39	33

SUMMARY

The names of the manufacturers whose feeds have been analyzed are given in alphabetical order in the following pages. The results are summarized without stating percentages found by analysis. If a brand of feed was found to be up to the standard guaranteed, or even exceeded it, the term "equaled guaranty" is used. In the same manner, if a feed is not up to the standard guaranteed, the results are summarized in statements like the following: "too low in protein," "too low in fat," "too high in fiber," "adulterated," "misbranded," "list of ingredients not as guaranteed," and other brief statements of facts.

Acme-Evans Co., Indianapolis, Ind. Inspection samples analyzed, 15.
Homlik, 1; equaled guaranty.
Acme Feed, 3; 1 too low in protein.
Acme Farm Feed, 1; equaled guaranty.
Acme Stock Feed, 3; 1 too low in protein and too high in fiber; inferior product.
Acme Dairy Feed, 4; equaled guaranty.
D-Light-U Dairy Feed, 3; 1 too low in protein; 1 too high in fiber; 2 no corn gluten feed present; 1 no linseed meal present.

Adairville Milling Co., Adairville, Ky. Inspection sample of Shipstuff analyzed, 1; equaled guaranty.

Alfocorn Milling Co., St. Louis, Mo. Inspection samples analyzed, 6.
Alfocorn Egg Mash, 1; equaled guaranty.
Full Pail Dairy Feed, 3; 1 contained oat by-product.
Alfocorn Horse Feed, 1; too low in protein; no linseed oil meal present.
Alfocorn Hog Fatner, 1; hominy feed substituted for corn meal.

The Allen & Wheeler Co., Troy, Ohio. Inspection sample of Trojan A-1 Farm Feed analyzed, 1; equaled guaranty.

American Coal & Feed Co., Louisville, Ky. Inspection sample of American Scratch Feed analyzed, 1; no buckwheat or barley present; wheat inferior; misbranded.

American Linseed Co., New York, N. Y. Inspection sample of Alinco Old Process Linseed Meal 34% analyzed, 1; equaled guaranty.

American Milling Co., Peoria, Ill. Inspection samples analyzed, 3.
Sucrene Dairy Feed, 1; too high in fiber; contained flax plant by-product.
Tip Top Sugared Feed, 2; equaled guaranty.

American Packing Co., St. Louis, Mo. Inspection sample of "Circle A Brand" 60% Digester Meat and Bone Tankage analyzed, 1; equaled guaranty.

Anderson & Spilman, Danville, Ky. Inspection sample of Anderson & Spilman Feed analyzed, 1; equaled guaranty.

The Ansted & Burk Co., Springfield, O. Inspection samples analyzed, 3.
Middlings & Screenings, 1; equaled guaranty.
Virginia Farm Feed, 1; equaled guaranty.
Corn By-Product Feed, 1; too low in protein and fat.

Arcady Farms Milling Co., Chicago, Ill. Inspection samples analyzed, 3.
Arcady Dairy Feed, 1; too high in fiber.
Provo Dairy Feed, 1; corn feed meal added.
Wonder Laying Mash, 1; too high in fiber; no corn gluten feed present.

Armour & Co., Chicago, Ill. Inspection samples of Armour's 60% Meat Meal analyzed, 2; equaled guaranty.

Ashbrook Milling Co., Mattoon, Ill. Inspection sample of Peerless Milk Producer analyzed, 1; too high in fiber; contained flax plant by-product.

Ashland Grocery Co., Ashland, Ky. Inspection sample of Standard Feed analyzed, 1; contained excess screenings and weed seeds.

Aubrey & Co., Louisville, Ky. Inspection samples analyzed, 20.
Aubrey's Wheat Bran & Screenings, 3; 2 equaled guaranty; 1 too low in protein.
Blackhawk Mixed Wheat Feed & Screenings, 2; equaled guaranty.
Blackhawk Feed & Screenings, 2; contained ground weed seeds.
Red "A" Wheat Feed & Screenings, 4; 2 too low in protein and contained ground weed seeds; 1 too low in fat.
Big "A" Sweet Feed, 2; contained added corn product.
Monarch Sweet Feed, 1; contained screenings refuse.
Monarch 16½% Protein Feed, 2; 1 corn feed meal added.
85% Grain Horse Feed, 1; too low in fat.
Red "A" Horse Feed, 1; equaled guaranty.
Aubrey's Scratch Feed, 1; only a trace of oats present.
Hominy Feed, 1; adulterated with corn bran; below guaranty in every respect.

J. J. Badenoch Co., Chicago, Ill. Inspection samples analyzed, 5.
Egg-A-Day Dry Mash, 1; only trace of ground barley present.
Jay Bee Dairy Feed, 1; equaled guaranty.
Milky Way Dairy Feed (with Beet Pulp), 1; equaled guaranty.
Sweet Honey Bee Dairy Feed, 2; 1 no alfalfa meal present.

J. H. Baker, Drakesboro, Ky.. Inspection sample of Shipstuff & Screenings analyzed, 1; too low in protein.

Ballard & Ballard Co., Louisville, Ky. Inspection samples analyzed, 12.
Ballard's Bran, 1; too low in protein.
Ballard's Mixed Wheat Feed & Screenings, 2; 1 too low in protein.
Kentucky Farm Feed & Screenings, 3; 2 too low in protein and contained excess screenings.
Insurance Scratch Grains, 1; ingredients not as guaranteed.
Ballard's Insurance Laying Mash, 2; equaled guaranty.
Sweet Insurance Feed, 1; equaled guaranty.
Milk Insurance Feed, 2; equaled guaranty.

Bardstown Milling Co., Bardstown, Ky. Inspection samples analyzed, 3.
Royal Dairy Feed, 1; equaled guaranty.
Royal Pig Feed, 2; equaled guaranty.

J. H. Baughman & Co., Stanford, Ky. Inspection sample of Mixed Mill Feed analyzed, 1; contained added wheat flour and corn feed meal.

Beaver Dam Milling Co., Beaver Dam, Ky. Inspection sample of Mixed Feed analyzed, 1; equaled guaranty.

Big Clifty Milling Co., Big Clifty, Ky. Inspection sample of Wheat Bran analyzed, 1; equaled guaranty.

Big Diamond Mills Co., Minneapolis, Minn. Inspection samples of Big Diamond Wheat Middlings & Screenings analyzed, 2; 1 too low in protein and too high in fiber; sample is finely ground wheat bran; misbranded.

Bisbee Linseed Co., Chicago Heights, Ill. Inspection samples analyzed, 2.
Bisbee 34 Per Cent, 1; equaled guaranty.
32% Old Process Linseed Oil Meal, 1; equaled guaranty.

Black & White Milling Co., E. St. Louis, Ill. Inspection sample of Black & White 24% Protein Dairy Feed analyzed, 1; contained added wheat bran; no corn germ meal present.

Blish Milling Co., Seymour, Ind. Inspection sample of Bull's Eye Mixed Wheat Feed analyzed, 1; too low in protein.

Bloomfield Mill & Grain Co., Bloomfield, Ky. Inspection sample of Ful-Pail Dairy Feed analyzed, 1; too high in fiber; oat by-product substituted for ground oats; contained corn cob.

Blue Grass-Elmendorf Grain Corporation, Lexington, Ky. Inspection samples of "Blue-Elm" Peerless Cow Feed analyzed, 2; too low in protein; 1 too low in fat and contained screenings.

Bowling Green Milling Co., Bowling Green, Ky. Inspection sample of Mixed Feed analyzed, 1; equaled guaranty.

F. W. Brode Corporation, Memphis, Tenn. Inspection samples analyzed, 8.

Owl Brand 41% Prime Cottonseed Meal, 5; 2 equaled guaranty; 2 too low in protein; 3 too high in fiber; 2 color slightly dark and hulls in excess.

Owl Brand 43% Prime Cottonseed Meal, 3; 2 too low in protein; 1 too high in fiber.

Chas. Broeker & Co., Owensboro, Ky. Inspection samples analyzed, 3.

Hominy Feed, 2; equaled guaranty.

XX Mixed Feed, 1; equaled guaranty.

Bryant's Roller Mills, Calhoun, Ky. Inspection sample of Mixed Wheat Feed analyzed, 1; too low in protein.

The Buckeye Cotton Oil Co., Cincinnati, O. Inspection samples of 41% Protein Cottonseed Meal analyzed, 2; equaled guaranty.

Burnside Roller Mills, Burnside, Ky. Inspection sample of Mixed Feed analyzed, 1; too low in protein.

Cadick Milling Co., Grandview, Ind. Inspection sample of Mixed Wheat Feed analyzed, 1; equaled guaranty.

Cannelton Flour Mills, Cannelton, Ind. Inspection sample of Shipstuff & Screenings analyzed, 1; equaled guaranty.

Carey Bros., Willisburg, Ky. Inspection samples of Mixed Feed analyzed, 2; 1 too low in protein and fat and contained wheat srceenings.

Carlisle Mill & Supply Co., Carlisle, Ky. Inspection sample of Old Kentucky Mill Feed analyzed, 1; too high in fiber.

Cecilian Milling Co., Cecilia, Ky. Inspection samples analyzed, 6.

Mixed Feed, 4; too high in fiber; 1 too low in protein; 1 too low in fat; 1 contained rice bran; 3 ingredients not as guaranteed—misbranded.

Flour Middlings, 2; 1 too low in protein; 1 too high in fiber.

Charleston Milling & Produce Co., Charleston, W. Va. Inspection samples analyzed, 6.

Mixed Feed, 1; too low in protein; contained excess of corn bran.

Quality Wheat Middlings, 3; 1 too low in protein; 2 much too low in protein and adulterated with corn bran—misbranded.

Double Bar Laying Mash, 1; too low in protein and too high in fiber.

Double Bar Horse & Mule Feed, 1; equaled guaranty.

Cincinnati Grain & Hay Co., Cincinnati, O. Inspection samples analyzed, 4.

"No Better" Dry Egg Mash, 1; too low in protein and too high in fiber; only a trace of alfalfa meal present; contained ground wheat screenings; charcoal present and in excess.

"No Better" Horse & Mule Feed, 1; too low in protein.
60% Tankage, 2; equaled guaranty.

Citizens' Roller Mills, Somerset, Ky. Inspection sample of Mixed Feed analyzed, 1; too low in protein and fat and too high in fiber.

Clarkson Milling Co., Clarkson, Ky. Inspection sample of Wheat Shorts analyzed, 1; too low in protein and fat.

Climax Roller Mills, S. M. Long & Sons, Prop., Shelbyville, Ky. Inspection samples analyzed, 2.
Climax Mill Feed, 1; too low in protein; contained excess screenings.
Red Dog, 1; too low in protein and fat.

Columbia Milling Co., Columbia, Ky. Inspection sample of Mixed Feed analyzed, 1; equaled guaranty.

The G. E. Conkey Co., Cleveland, O. Inspection samples analyzed, 3.
Conkey's Buttermilk Grain & Bone Starting Feed, 1; less than 3% each of blood flour and buttermilk present.
Conkey's Buttermilk Meat, Grain & Bone Laying Mash, 1; too low in protein.
Conkey's Buttermilk Meat, Grain & Bone Growing Mash, 1; only trace of bean meal present.

The Corno Mills Co., E. St. Louis, Ill. Inspection samples analyzed, 14.
Corn Feed Meal, 1; equaled guaranty.
Corno Hen Feed, 1; equaled guaranty.
Nutro Hen Feed, 1; equaled guaranty.
Corno Laying Mash, 2; equaled guaranty.
Corno Premium Feed, 2; equaled guaranty.
Corno Stock Feed, 2; contained excess oat hulls; 1 too low in protein and too high in fiber.
Corno Dairy Feed, 2; equaled guaranty.
Nutro Sweet Feed, 1; too low in protein and fat; contained excess oat by-product.
Nutro Dairy Feed, 2; 1 contained excess oat by-product; 1 contained corn gluten meal.

Crawford & Snyder, Milton, Ky. Inspection sample of Shipstuff analyzed, 1; equaled guaranty.

Crown Jewel Milling Co., Cynthiana, Ky. Inspection sample of Mixed Feed analyzed, 1; equaled guaranty.

Dairyman's Feed & Supply Co., Mayfield, Ky. Inspection sample of Dairyman's Increase Dairy Feed analyzed, 1; equaled guaranty.

S. P. Davis, Little Rock, Ark. Inspection samples of "Goodluck Brand" 41 % Cottonseed Meal analyzed, 2; equaled guaranty.

Dixie Mills Co., E. St. Louis, Ill. Inspection samples analyzed, 3.
Dixie Laying Mash, 1; too high in fiber; no linseed oil meal present.
Dixie Cow Feed, 1; equaled guaranty.
Dixie Horse & Mule Feed, 1; equaled guaranty.

The Dorsel Co., Newport, Ky. Inspection sample of Dorsel's Special Feed analyzed, 1; too low in protein and fat; contained wheat screenings.

Dulle Meyer Milling Co., Chamois, Mo. Inspection sample of Red, White and Blue Middlings & Screenings analyzed, 1; equaled guaranty.

Early & Daniel Co., Cincinnati, O. Inspection samples analyzed, 14.
Rex Chick, 1; equaled guaranty.
Tuxedo Egg Mash, 2; 1 corn feed meal added.
Tuxedo Chop, 1; contained only traces of wheat bran and barley grains.
Cerealia Sweets, 2; equaled guaranty.
Rex Dairy, 1; too low in protein.
Tuxedo Dairy, 1; no hominy feed present.
Miami Dairy Feed, 5; 3 too low in protein.
Tuxedo Hog Ration, 1; equaled guaranty.

East St. Louis Cotton Oil Co., National Stock Yards, Ill. Inspection sample of St. Clair Brand 36% Cottonseed Feed analyzed, 1; too low in protein.

Eckert Packing Co., Henderson, Ky. Inspection sample of Eckert's Pigs' Delight Digester Tankage analyzed, 1; equaled guaranty.

Edinger & Co., Louisville, Ky. Inspection sample of 41% Choice Cottonseed Meal analyzed, 1; too high in fiber.

Elkhorn Roller Mills, Elkhorn, Ky. Inspection sample of Mixed Wheat Feed analyzed, 1; too low in protein.

Eminence Milling Co., Eminence, Ky. Inspection samples analyzed, 2.
Leader Mixed Feed, 1; contained excess of ground wheat screenings.
Leader Dairy Feed, 1; too high in fiber.

Evans Milling Co., Indianapolis, Ind. Inspection sample of Emco Hominy Feed analyzed, 1; equaled guaranty.

Exchange Milling Co., Sturgis, Ky. Inspection sample of Mixed Brans & Screenings analyzed, 1; too low in protein.

Falls City Ice & Beverage Co., Louisville, Ky. Inspection sample of Brewers' Dried Grains analyzed, 1; too high in fiber.

Farmers Mill Co., Columbia, Ky. Inspection sample of Shipstuff analyzed, 1; equaled guaranty.

The Farmers Mill, Clay, Ky. Inspection sample of Mixed Feed analyzed, 1; too low in protein.

Farmers & Merchants Milling Co., Brooksville, Ky. Inspection sample of Mixed Wheat Feed analyzed, 1; too low in protein.

Feed Marketing Co., St. Louis, Mo. Inspection sample of Scientific Dairy Feed 24% Protein analyzed, 1; too low in protein and fat.

Ferncliff Feed & Grain Co., Louisville, Ky. Inspection samples analyzed, 7.

Cracker Jack 21% Dairy Ration, 1; less than 3% ground oats present; contained ground screenings.

Cracker Jack Dairy Ration, 1; equaled guaranty.

"Sweet Sixteen" Dairy Feed, 1; equaled guaranty.

Cracker Jack Special Feed, 1; no wheat bran present.

P. D. Q. Special Feed, 1; too high in fiber.

Cracker Jack Horse & Mule Feed, 1; too low in protein.

P. D. Q. Mill Feed, 1; contained excess screenings containing large per cent of weed seeds.

The Fleischmann Co., Cincinnati, O. Inspection sample of Fleischmann Dried Malt Grains analyzed, 1; equaled guranaty.

Flemingsburg Mills, Flemingsburg, Ky. Inspection sample of Wheat Bran & Screenings analyzed, 1; equaled guranaty.

Henry Fruechtenicht, Louisville, Ky. Inspection samples analyzed, 2.

Blue Grass Dairy Feed, 1; contained large per cent of ground grain screenings.

Ground Oats, 1; too high in fiber; contained corn product.

C. R. Garner & Co., Amarillo, Texas. Inspection sample of Texama Brand 43% Cottonseed Meal analyzed, 1; too low in protein.

Garrard Mills, Lancaster, Ky. Inspection sample of Glen Lily Mixed Feed analyzed, 1; ground wheat substituted for wheat bran and wheat middlings.

Germantown Milling Co., Germantown, Ky. Inspection sample of Mixed Wheat Feed analyzed, 1; too low in protein.

Glass Milling Co., Wilmore, Ky. Inspection sample of Glass Hi-Grade Feed analyzed, 1; equaled guaranty.

Goldcamp Mill Co., Ironton, O. Inspection samples analyzed, 2.

Gainmor White Feed, 1; too high in fiber.

K-Y Feed, 1; equaled guaranty.

Golden Grain Milling Co., E. St. Louis, Ill. Inspection sample of Golden Grain Milk Producer analyzed, 1; too low in protein and too high in fiber; contained oat by-product.

Green Bros., Falls of Rough, Ky. Inspection sample of Mixed Feed analyzed, 1; equaled guaranty.

Green River Milling Co., Greensburg, Ky. Inspection sample of Mixed Feed analyzed, 1; equaled guaranty.

Green River Milling Co., S. Carrollton, Ky. Inspection sample of Green River Feed analyzed, 1; much too low in protein; too low in fat; contained corn meal.

Greendale Mills, Lawrenceburg, Ind. Inspection samples analyzed, 5.
Greendale Egg Mash with Dried Buttermilk, 1; too low in protein; no soybean meal present.
Greendale Hog Feed, 1; equaled guaranty.
Greendale 16% Dairy Feed, 1; too low in fat and too high in fiber.
Greendale 20% Dairy Feed (Sweet), 1; too low in protein.
Greendale 24% Dairy Feed, 1; much too low in protein.

Gwinn Bros. & Co., Huntington, W. Va. Inspection samples analyzed, 2.
Farm Feed, 1; equaled guaranty.
Fancy White Wheat & Rye Middlings & Screenings, 1; too low in protein and fat.

Hales & Hunter Co., Chicago, Ill. Inspection samples analyzed, 4.
Red Comb Mash Feed (with Dried Buttermilk), 1; no linseed oil meal or alfalfa meal present; contained corn gluten meal and ground wheat screenings.
Gold Flake Dairy Feed, 3; 1 no linseed oil meal present; contained corn meal.

R. L. Harrison & Son, Bagdad, Ky. Inspection samples of Empress analyzed, 3; 2 too low in protein.

The P. H. Harsha Milling Co., Portsmouth, O. Inspection samples of Harsha's Middlings & Screenings analyzed, 2; 1 too low in protein.

Haydon Mill & Grain Co., Springfield, Ky. Inspection sample of Economy Feed analyzed, 1; equaled guaranty.

Hirst & Begley Linseed Co., Chicago, Ill. Inspection sample of H. & B. L. Co. Brand 34% Linseed Meal analyzed, 1; equaled guaranty.

Hiseville Milling Co., Hiseville, Ky. Inspection sample of Mixed Wheat Feed analyzed, 1; equaled guaranty.

Hodgenville Roller Mills, Hodgenville, Ky. Inspection sample of Lincoln analyzed, 1; equaled guaranty.

Home Milling Co., Greenville, Ky. Inspection samples of Happy Home Mixed Feed analyzed, 2; 1 too low in fat; 1 too low in protein and ingredients not as guaranteed.

Hopkins Fertilizer Co., New Albany, Ind. Inspection sample of Hopkins 50% Meat Scraps analyzed, 1; equaled guaranty.

Hopkinsville Milling Co., Hopkinsville, Ky. Inspection sample of Middlings & Screenings analyzed, 1; equaled guaranty.

Horse Cave Mills, Horse Cave, Ky. Inspection samples analyzed, 2.
Superior Wheat Feed, 1; equaled guaranty.
Pure Bran & Shorts, 1; too low in fat.

Humphreys-Godwin Co., Memphis, Tenn. Inspection samples analyzed, 4.
"Dixie Brand" 41% Cottonseed Meal, 2; 1 too high in fiber.
"Bull Brand" 43% Cottonseed Meal, 2; 1 too low in protein.

Igleheart Bros., Evansville, Ind. Inspection samples analyzed, 2.
Pure Wheat Mixed Feed & Screenings, 1; equaled guaranty.
Pure Wheat Shorts & Screenings, 1; too low in fat.

International Sugar Feed No. Two Co., Memphis, Tenn. Inspection samples analyzed, 15.
International Jewel Egg Mash with Buttermilk, 1; too low in fat; contained ground oats.
International Jewel Growing Mash, 1; too low in protein and fat and too high in fiber; only trace of ground barley present.
International Jewel Horse Feed, 1; cottonseed meal added.
International Planters' Cattle Feed, 1; contained wheat middlings; not labeled according to law.
International Special Dairy Feed, 6; 2 too low in protein; 1 contained corn feed meal; 2 contained excess ground grain screenings; 1 only trace of linseed oil meal present; 2 ingredients not as guaranteed—misbranded.
International Makmeat Hog Feed, 5; 3 too low in protein; 4 no corn gluten feed present; 1 contained molasses.

Jellico Grocery Co., Corbin, Ky. Inspection samples analyzed, 2.
Cyclone Fine Feed, 1; not labeled according to law.
Red Bird Fine Feed, 1; too low in protein; contained ground weed seeds.

The Jersee Co., Minneapolis, Minn. Inspection sample of Just Right Egg Mash No. 1 analyzed, 1; too high in fiber.

The Joslin-Schmidt Co., Cincinnati, O. Inspection samples of Abattoir Brand 60% Digester Tankage analyzed, 2; equaled guaranty.

The E. Kahn's Sons Co., Cincinnati, O. Inspection sample of Kahn's Diamond K. 60% Digester Tankage analyzed, 1; equaled guaranty.

Keister Milling Co., Huntington, W. Va. Inspection samples analyzed, 2.
Fancy White Middlings, 1; too low in protein and fat and too high in fiber.
Lotus Wheat & Rye Middlings, 1; too high in fiber.

George Keller, Newport, Ky. Inspection sample of Corn Meal analyzed, 1; too low in fat.

Kellogg Co., Battle Creek, Mich. Inspection sample of Hexite Dairy Feed with Molasses analyzed, 1; equaled guaranty.

Kenton Hay & Grain Co., Latonia, Ky. Inspection sample of Wheat Middlings analyzed, 1; too high in fiber; contained ground wheat screenings and weed seeds.

Kentucky Feed & Grain Co., Louisville, Ky. Inspection samples analyzed, 30.

Premo Mixed Wheat Feed, 1; too high in fiber.

Dandy Wheat Feed & Screenings, 2; 1 too low in protein and too high in fiber; both contained ground weed seeds.

Success Middlings, 1; equaled guaranty.

Premo Baby Chick, 1; equaled guaranty.

Sedan Scratch Feed, 1; equaled guaranty.

Kentucky Star Scratch Feed, 1; equaled guaranty.

Kentucky Star Laying Mash, 1; equaled guaranty.

Premo Laying Mash, 3; 1 less than 3% alfalfa meal present.

Derby Horse & Mule Feed, 1; mixed wheat feed added.

Success Horse & Mule Feed, 4; equaled guaranty.

Kentucky Star Horse & Mule Feed, 1; equaled guaranty.

Premo Dairy Feed, 3; 2 too low in protein; 1 no rice bran present.

Kentucky Star Dairy Feed, 4; 1 too low in protein; 1 too high in fiber.

Marshall's 24% Dairy Feed, 3; 1 no rice bran present; 1 no linseed oil meal present.

Premo Hog Feed, 2; equaled guaranty.

Alfalfa Meal, Cane Molasses, Oat Middlings & Oat Hulls, 1; ground grain screenings substituted for oat middlings and oat hulls—misbranded.

King Midas Mill Co., Minneapolis, Minn. Inspection samples analyzed, 2.

Standard Feed & Screenings, 1; adulterated and misbranded as to ingredients.

Snowball Wheat Flour Middlings & Screenings, 1; too high in fiber.

Klarer Provision Co., Louisville, Ky. Inspection sample of Klarer 40% Digester Meat & Bone Tankage analyzed, 1; equaled guaranty.

Chas. A. Krause Milling Co., Milwaukee, Wis. Inspection samples analyzed, 4.

Kookoo Egg Mash, 1; too high in fiber.

Badger 16½% Sweet Dairy Feed, 1; no linseed oil meal present; contained distillers' dried grains, brewers' dried grains and corn gluten feed.

Amerikorn Dairy Ration, 2; too high in fiber; 1 contained oat product.

The Ladish Co., Milwaukee, Wis. Inspection sample of Lacto 16½% Sweet Dairy Feed analyzed, 1; contained excess grain screenings and weed seeds.

Lake Co. Manufacturing Co., Tiptonville, Tenn. Inspection sample of "Lake" 41% Choice Cottonseed Meal analyzed, 1; too low in protein and too high in fiber.

The Larrowe Milling Co., Detroit, Mich. Inspection samples analyzed, 4.
Larro, 3; equaled guaranty.
Dried Beet Pulp, 1; equaled guaranty.

Lawrenceburg Roller Mills Co., Lawrenceburg, Ind. Inspection sample of "Snowflake" Middlings & Screenings analyzed, 1; equaled guaranty.

Leitchfield Milling Co., Leitchfield, Ky. Inspection sample of Mill Feed analyzed, 1; equaled guaranty.

Lewisport Mill Co., Lewisport, Ky. Inspection sample of Farmers' Choice analyzed, 1; equaled guaranty.

Lexington Roller Mills Co., Lexington, Ky. Inspection samples analyzed, 5.
Thoroughbred Feed, 4; 3 too low in protein; 2 contained excess corn bran.
Thoroughbred Cow Feed, 1; too low in fat; contained ground wheat screenings.

Lookout Oil & Refining Co., Chattanooga, Tenn. Inspection samples of 41% Cottonseed Meal analyzed, 2; too high in fiber; 1 too low in protein.

Louisville Cereal Mill Co., Louisville, Ky. Inspection samples analyzed, 2.
Nonesuch Hominy Feed, 1; too low in protein.
Nonesuch Feed, 1; equaled guaranty.

Louisville Cotton Oil Mill, Louisville, Ky. Inspection samples analyzed, 8.
"Eagle Brand" 41% Choice Cottonseed Meal, 7; 1 too low in protein; 1 too high in fiber.
43% Cottonseed Meal, 1; equaled guaranty.

Louisville Feed Mills, Louisville, Ky. Inspection samples analyzed, 4.
Lincoln Horse & Mule Feed, 1; equaled guaranty.
Lincoln Dairy Feed, 3; too low in protein; 1 contained corn feed meal, wheat middlings, flax plant by-product and ground grain screenings—misbranded.

Louisville Milling Co., Louisville, Ky. Inspection samples analyzed, 6.
Sonny South Wheat Shorts & Screenings, 2; equaled guaranty.

Sonny South Mixed Wheat Feed & Screenings, 3; equaled guaranty.

Sonny South Hominy Feed, 1; equaled guaranty.

L. B. Lovitt & Co., Memphis, Tenn. Inspection sample of Lovit Brand 41% Cottonseed Meal analyzed, 1; equaled guaranty.

The Mann Bros. Co., Buffalo, N. Y. Inspection sample of "Argentine Brand" Pure Old Process Linseed Oil Meal analyzed, 1; equaled guaranty.

Marianna Sales Co., Memphis, Tenn. Inspection samples analyzed, 7.
"White Mule Brand" 41% Cottonseed Meal, 6; 2 too low in protein; 3 too high in fiber and contained excess hulls.
"White Mule Brand" 43% Cottonseed Meal, 1; equaled guaranty.

Mayfield Milling & Grocery Co., Mayfield, Ky. Inspection sample of Mixed Feed analyzed, 1; too low in protein; contained excess of corn bran.

Gentry McCauley, Versailles, Ky. Inspection samples of Pleez-U Dairy Feed analyzed, 2; much too low in protein and fat.

Memphis Cottonseed Products Co., Memphis, Tenn. Inspection samples of Durham 41% analyzed, 2; 1 too low in protein and too high in fiber.

Middlesboro Milling Co., Middlesboro, Ky. Inspection sample of "Hard to Beat" Mixed Feed analyzed, 1; too high in fiber.

Midget Milling Co., Providence, Ky. Inspection sample of Flavo Mixed Wheat Feed analyzed, 1; equaled guaranty.

Milroy Milling Co., Milroy, Ind. Inspection samples of Red Diamond Feed analyzed, 2; equaled guaranty.

Minneapolis Milling Co., Minneapolis, Minn. Inspection sample of Minneapolis Milling Co.'s Wheat Middlings & Screenings analyzed, 1; equaled guaranty.

Model Mills, Georgetown, Ky. Inspection sample of Mixed Feed analyzed, 1; too low in protein.

Model Roller Milling Co., Smith's Grove, Ky. Inspection sample of Mixed Feed analyzed, 1; equaled guaranty.

Morganfield Roller Mills, Morganfield, Ky. Inspection samples analyzed, 2.
Laying Mash, 1; no corn grits present; contained ground oats.
"White Rose" Mixed Feed, 1; equaled guaranty.

Morrison Milling Co., Glasgow, Ky. Inspection sample of Mixed Feed analyzed, 1; equaled guaranty.

Moss Milling Co., Greensburg, Ky. Inspection samples of Wheat Bran analyzed, 2; samples were mixed wheat feed.

Mountain City Mill Co., Chattanooga, Tenn. Inspection samples of Blue Cow Fine Feed analyzed, 2; contained excess of ground wheat screenings and weed seeds; 1 too low in protein.

Munfordsville Milling Co., Munfordsville, Ky. Inspection sample of Shipstuff analyzed, 1; equaled guaranty.

Myers & Barger, Columbia, Ky. Inspection sample of Mixed Feed analyzed, 1; equaled guaranty.

National Cottonseed Products Corporation, Memphis, Tenn. Inspection samples analyzed, 3.
Star Brand 41% Cottonseed Meal, 1; too low in protein and too high in fiber.
Planet Brand 43% Cottonseed Meal, 2; equaled guaranty.

R. N. Neal & Co., Memphis, Tenn. Inspection samples analyzed, 2.
"Triangle Brand" Prime 41% Protein Cottonseed Meal, 1; too high in fiber.
"Triangle" 43% Cottonseed Meal, 1; too low in protein.

The Newsome Feed & Grain Co., Pittsburg, Pa. Inspection sample of Palmo Midds analyzed, 1; equaled guaranty.

Nicholson Mills, Henderson, Ky. Inspection samples analyzed, 3.
Vita-Pure Scratch Feed, 1; too low in protein; ingredients not as guaranteed.
Vita-Pure 16% Sweet Dairy Feed, 1; equaled guaranty.
Vita-Pure 24% Dairy Feed, 1; too low in protein and too high in fiber.

Nolin Milling Co., Nolin, Ky. Inspection samples analyzed, 3.
Shipstuff, 1; equaled guaranty.
Mixed Feed, 1; too low in protein and fat; contained ground wheat screenings.
"Special" Mixed Feed, 1; too low in fat; contained corn bran.

W. C. Nothern, Memphis, Tenn. Inspection samples of Bee Brand 41% Cottonseed Meal analyzed, 3; equaled guaranty.

Nowak Milling Corporation, Hammond, Ind. Inspection samples analyzed, 6.
Marathon Laying Mash, 1; equaled guaranty.
Marathon Horse Feed, 1; only trace of alfalfa meal present.
Marathon Dairy Feed, 1; equaled guaranty.
Domino Butterine Dairy Feed, 2; equaled guaranty.
Domino 24½% Dairy Feed, 1; equaled guaranty.

Orange & Layman, Princeton, Ky. Inspection sample of Orange & Layman Special Laying Mash analyzed, 1; equaled guaranty.

Osborne Milling Co. Rineyville, Ky. Inspection sample of Wheat Bran & Middlings analyzed, 1; equaled guaranty.

Owensboro Milling Co., Owensboro, Ky. Inspection sample of Star Dairy Feed analyzed, 1; too low in protein.

Paducah Milling Co., Paducah, Ky. Inspection sample of Mixed Feed analyzed, 1; much too low in protein; too low in fat; contained finely ground corn product and ground oat hulls; adulterated and misbranded.

Park & Pollard Co., Chicago, Ill. Inspection samples analyzed, 5.

"Lay or Bust" Dry Mash, 1; no milo maize present; contained only traces of ground barley and ground kaffir corn.

Stevens "44" Dairy Ration, 1; no soybean meal present; contained oat shorts and oat hulls, and ground weed seeds.

Wizard Universal Ration, 3; 2 too low in protein and too high in fiber; 1 contained corn feed meal and no ground cocoa shells present; 1 contained wheat bran.

Parksville Roller Mills, Parksville, Ky. Inspection samples of Mixed Feed analyzed, 2; 1 too low in fat.

I. E. Payne. Eubank, Ky. Inspection sample of Shipstuff analyzed, 1; contained wheat screenings.

Pembroke Milling Co., Pembroke, Ky. Inspection sample of Mixed Feed analyzed, 1; too low in protein.

Philpot Mills, Philpot, Ky. Inspection sample of Mixed Feed analyzed, 1; too low in protein.

Phoenix Cotton Oil Co., Dyersburg, Tenn. Inspection sample of Phoenix Choice Grade 41% Cottonseed Meal analyzed, 1; too high in fiber.

Phoenix Flour Mill, Evansville, Ind. Inspection sample of Wheat Shorts & Screenings analyzed, 1; too low in protein; contained excess screenings.

Geo. P. Plant Milling Co., St. Louis, Mo. Inspection samples of "Circle P." Wheat Middlings & Screenings analyzed, 2; equaled guaranty.

R. C. Poage Milling Co., Ashland, Ky. Inspection sample of Standard Feed analyzed, 1; contained excess screenings.

Polo Mills Co., E. St. Louis, Ill. Inspection sample of Diamond Dairy Feed analyzed, 1; contained wheat bran and corn gluten meal.

Pratt Food Co., Philadelphia, Pa. Inspection samples analyzed, 9.

Pratt's Circle "A" Scratch Feed (large size), 1; only trace of milo present.

Pratt's Utility Large Scratch Feed, 1; less than 3% each of kaffir, milo, oats and buckwheat present; misbranded.

Pratt's Victory Laying Mash (with Buttermilk), 2; 1 contained ground bone.

Pratt's Supreme Laying Mash, 1; equaled guaranty.
Pratt's Supreme Growing Mash (with Buttermilk), 1; equaled guaranty.
Pratt's Supreme Horse Feed, 1; equaled guaranty.
Pratt's Victory Dairy Ration, 2; 1 contained corn feed meal and ground oats.

S. S. Price Co., Lexington, Ky. Inspection sample of Price's 30%, Tankage analyzed, 1; too low in protein.

The Quaker Oats Co., Chicago, Ill. Inspection samples analyzed, 10.
Ful-O-Pep Scratch Grains, 1; equaled guaranty.
Ful-O-Pep Egg Mash, 2; 1 too high in fiber.
Ful-O-Pep Chick Starter, 1; equaled guaranty.
Schumacher Feed, 1; less than 3% cottonseed meal present.
Sugared Schumacher Feed, 1; too high in fiber.
Buckeye Feed, 2; equaled guaranty.
Quaker Dairy Feed, 2; 1 contained excess of oat middlings and oat hulls; no bone meal present.

Ralston Purina Co., St. Louis, Mo. Inspection samples analyzed, 18.
Purina Baby Chick Chow Feed, 1; equaled guaranty.
Purina Hen Chow Feed, 1; equaled guaranty.
Purina Chick Startena Feed (with Buttermilk), 1; equaled guaranty.
Purina Chicken Fatena Feed, 1; equaled guaranty.
Purina Chicken Chowder Feed (with Charcoal), 2; 1 no gluten feed present.
Purina Pigeon Chow Feed, 2; 1 no corn present; 1 less than 3% millet present.
Purina Cow Chow, 2; 1 contained mixed wheat feed.
Purina Pig Chow Feed (with Charcoal 1%), 3; equaled guaranty.
Purina Omolene Feed, 3; 1 too low in protein; 2 too high in fiber.
Bulky Las Feed, 1; too high in fiber.
Checker Chops, 1; degermed; too low in fat.

Rapier Sugar Feed Co., Owensboro, Ky. Inspection samples analyzed, 9.
Rapier's Blue Hen Scratch Feed, 1; too low in protein.
Rapier's Blue Hen Laying Mash, 1; equaled guaranty.
Rapier's Red Wing Horse & Mule Feed, 1; equaled guaranty.
Rapier's Otene Horse & Mule Feed, 1; equaled guaranty.
Rapier's Teamster Horse & Mule Feed, 1; too low in protein.
Rapier's Creamo Dairy Feed, 3; 1 contained oat middlings and oat hulls—misbranded.
Rapier's Golden Rod Dairy Feed, 1; equaled guaranty.

Read Phosphate Co., New Albany, Ind. Inspection sample of "Read's Red Diamond" 60% Digester Tankage analyzed, 1; equaled guaranty.

R. D. Riedling, Louisville, Ky. Inspection sample of R. D.'s Feed analyzed, 1; contained ground weed seeds.

Riverside Mills, Adairville, Ky. Inspection sample of Mixed Feed analyzed, 1; equaled guaranty.

The Rossville Grain Co., Lawrenceburg, Ind. Inspection samples analyzed, 3.
Fortuna A-1 Dairy Feed, 2; equaled guaranty.
Kismet 16% Feed, 1; equaled guaranty.

Roszell Bros., Lexington, Ky. Inspection samples analyzed, 4.
Roszbro Horse Feed, 1; equaled guaranty.
R-B 16% Dairy Ration, 1; equaled guaranty.
Rex 20% Dairy Ration, 1; too low in fat.
Roszbro 24% Dairy Ration, 1; equaled guaranty.

Rudy-Patrick Seed Co., Kansas City, Mo. Inspection sample of Everyday Scratch Feed analyzed, 1; less than 3% sunflower seed present.

Salt Lick Roller Mills, Salt Lick, Ky. Inspection sample of Perfect Mixed Feed analyzed, 1; equaled guaranty.

Sandusky Bros. Co., Harrodsburg, Ky. Inspection sample of Mill Feed analyzed, 1; too low in protein.

Security Mills, Knoxville, Tenn. Inspection samples analyzed, 2.
Security Dairy Feed, 1; equaled guaranty.
Big "S" Horse Feed, 1; equaled guaranty.

Shrewsbury & Washburn, Caneyville, Ky. Inspection sample of Shipstuff analyzed, 1; equaled guaranty.

W. T. Sistrunk & Co., Lexington, Ky. Inspection sample of Sisco Sugar Dairy analyzed, 1; equaled guaranty.

Slaughters Milling Co., Slaughters, Ky. Inspection sample of Wheat Mixed Feed analyzed, 1; too low in fat.

Southern Feed & Grain Co., Louisville, Ky. Inspection samples analyzed, 7.
Eagle Scratch Feed, 1; contained wheat and only trace of barley.
Ideal Horse & Mule Feed, 2; no alfalfa meal present; 1 too low in protein; 1 contained wheat middlings.
Standard Horse & Mule Feed, 1; equaled guaranty.
Eagle Horse & Mule Feed, 1; contained ground grain screenings.
Ideal Sweet Feed, 2; contained corn by-product and wheat middlings.

Sparks Milling Co., Alton, Ill. Inspection samples of Try Me Mixed Wheat Feed & Screenings analyzed, 2; equaled guaranty.

Woodford Spears & Sons, Paris, Ky. Inspection sample of Mixed Feed analyzed, 1; contained excess screenings.

G. W. Stamper & Co., Vanceburg, Ky. Inspection sample of Wheat Middlings & Screenings analyzed, 1; equaled guaranty.

Star Milling Co., Clinton, Ky. Inspection sample of Mixed Feed analyzed, 1; too low in protein; contained excess of corn product.

The St. Louis Mills Co., St. Louis, Mo. Inspection sample of Gilt Edge Ninety Horse & Mule Feed analyzed, 1; equaled guaranty.

The Sugarine Co., Owensboro, Ky. Inspection samples analyzed, 18.
Record Scratch Feed, 1; less than 3% buckwheat present.
Universal Laying Mash, 1; equaled guaranty.
Sugarine Egg Mash with Buttermilk, 2; 1 too low in fat.
Record Horse Feed, 1; equaled guaranty.
Ideal Horse & Mule Feed, 1; contained excess of oat by-product.
Sugarine Dairy Feed, 3; equaled guaranty.
Sugared Feed, 1; equaled guaranty.
The National Dairy Ration, 4; 1 no peanut meal present.
Record Dairy Feed, 3; equaled guaranty.
Sugarine 32% Supplement Ration, 1; equaled guaranty.

Sunnyside Milling Co., Evansville, Ind. Inspection sample of Winter Wheat Shorts & Screenings analyzed, 1; contained excess ground wheat screenings.

D. B. Sutherland & Sons, Bloomfield, Ky. Inspection sample of Sutherland's Feed analyzed, 1; too low in fat.

Tell City Flouring Mills, Tell City, Ind. Inspection sample of Wheat Middlings & Screenings analyzed, 1; too low in protein; contained excess wheat screenings.

Texas Cake & Linter Co., Dallas, Texas. Inspection sample of Texoma Brand 43% Cottonseed Meal analyzed, 1; equaled guaranty.

Three Minute Cereals Co., Corno Mills Co., Prop., Cedar Rapids, Ia. Inspection sample of Corno Hygrade Oat By-Product Feed analyzed, 1; too low in protein.

Trenton Milling Co., Trenton, Ill. Inspection sample of "Easter Lily" Wheat Mixed Feed & Screenings analyzed, 1; equaled guaranty.

The Ubiko Milling Co., Cincinnati, O. Inspection samples analyzed, 5.
Ubiko Egg Mash with Buttermilk, 1; equaled guaranty.
"Union Grains" Ubiko Biles Ready Dairy Ration, 2; equaled guaranty.
Ubiko Special Dairy Ration, 1; equaled guaranty.

Fourex Dairy Ration, 1; too low in protein and too high in fiber; contained oat by-product.

United Bi-Products Co., Chicago, Ill. Inspection sample of Success Brand 60% Digester Tankage analyzed, 1; equaled guaranty.

United Mills Corporation, Grafton, O. Inspection sample of Grafton Wheat Middlings & Screenings analyzed, 1; equaled guaranty.

Upton Mill, Upton, Ky. Inspection sample of Mixed Feed analyzed, 1; equaled guaranty.

Vailer & Spies Milling Co., St. Louis, Mo. Inspection sample of Valier's Mixed Wheat Feed & Screenings analyzed, 1; equaled guaranty.

Walton Sanitary Flour Mills, Walton, Ky. Inspection sample of Big Bone Dairy Ration analyzed, 1; much too low in protein and fat; no dried brewers' grains present; contained ground wheat screenings.

The Washington Milling Co., Washington C. H. O. Inspection sample of Wheat Middlings & Scourings analyzed, 1; too low in protein.

Weisenberger's Sanitary Flour Mills, Midway, Ky. Inspection sample of Mixed Mill Feed analyzed, 1; too low in fat.

Alva West & Co., Maysville, Ky. Inspection samples of Mixed Feed analyzed, 2; 1 much too low in protein.

A. P. White & Co., Cadiz, Ky. Inspection sample of National analyzed, 1; contained excess wheat screenings.

Whitley Grocery Co., Corbin, Ky. Inspection samples of Jersey Cream Cow Feed analyzed, 2; 1 too low in protein; 1 much too low in protein and inferior to claim.

Winchester Roller Mills, Winchester, Ky. Inspection samples analyzed, 6.

O-Kay Scratch Feed, 1; less than 3% wheat present.

O-Kay Horse Feed, 1; too low in protein; no alfalfa meal present.

Mixed Feed, 1; equaled guaranty.

Perfection Dairy Feed, 1; ingredients not as guaranteed—misbranded.

O-Kay Dairy Feed, 2; ingredients not as guaranteed—misbranded.

Woolcott Flour Mills, Lexington, Ky. Inspection samples analyzed, 4.

Woolcott's Mixed Feed, 2; contained excess screenings; 1 too low in protein.

Pride of Kentucky Dairy Feed, 1; equaled guaranty.

Alpine Dairy Feed, 1; equaled guaranty.

Pearl Young & Sons, Caneyville, Ky. Inspection sample of "Young & Sons" Feed analyzed, 1; too high in fiber.

Young & Bishop, Providence, Ky. Inspection sample of Mixed Feed analyzed, 1; equaled guaranty.

Roy Yount, Frankfort, Ky. Inspection sample of Benson Valley Dairy Feed analyzed, 1; contained ground grain screenings.

Zabel Milling Co., New Albany, Ind. Inspection samples analyzed, 4.
Mixed Wheat Feed & Screenings, 3; too low in protein and too high in fiber; misbranded.
Flour Middlings & Screenings, 1; equaled guaranty.

J. W. Zaring Grain & Mill Co., Richmond, Ky. Inspection sample of Bonanza analyzed, 1; equaled guaranty.